IN THE CLAIMS:

1-33. (Cancelled)

34. (New) A multilayer system for the extreme ultraviolet wavelength range, comprising:

alternating layers of materials with different refractive indices or absorption coefficients, and a protective layer system having different material than said alternating layers and being disposed on top of said alternating layers, wherein the protective layer system is molybdenum carbide covered by iridium, aluminum oxide covered by iridium, titanium nitride covered by iridium, or titanium dioxide covered by iridium, or wherein the protective layer system comprises at least silicon nitride.

35. (New) A multilayer system for the extreme ultraviolet wavelength range, comprising:

alternating layers of a) molybdenum and silicon or b) molybdenum and beryllium, and a protective layer system disposed on said alternating layers, wherein the protective layer system is molybdenum carbide covered by iridium, aluminum oxide covered by iridium, titanium nitride covered by iridium or titanium dioxide covered by iridium, or wherein the protective layer system comprises at least silicon nitride.

36. (New) A multilayer system for the extreme ultraviolet wavelength range, comprising:

alternating layers of materials with different refractive indices or absorption coefficients, and at least one barrier layer between two of said alternating layers, wherein said at least one barrier layer is Mo_2C layer.

37. (New) The multilayer system according to claim 36, wherein a first layer of said alternating layers is a molybdenum layer and a second layer of said alternating layers is a silicon layer.

38. (New) The multilayer system according to claim 37, wherein a first barrier layer of said at least one barrier layer is a Mo_2C layer and a second barrier layer of said at least one barrier layer is a SiC layer.

39. (New) The multilayer system according to claim 36, wherein a first layer of said alternating layers is a molybdenum layer and a second layer of said alternating layers is a beryllium layer.

40. (New) A multilayer system for the extreme ultraviolet wavelength range, comprising:

alternating layers of materials with different reflective indices or absorption coefficients and at least one barrier layer between two of said alternating layers, wherein said at least one barrier layer contains nitrogen.

41. (New) The multilayer system according to claim 40, wherein said at least one barrier layer contains implanted nitrogen.

42. (New) The multilayer system according to claim 40, wherein said a first layer of said alternating layers is a molybdenum layer and a second layer of said alternating layers is a silicon layer.

43. (New) The multilayer system according to claim 42, wherein said at least one barrier layer is a Si_3N_4layer.